

Remarks

The Office Action mailed February 16, 2006 has been carefully considered. The Office maintains its rejection of Claims 1-2, 4, 7, and 10-11 as unpatentable over Weibel, Arena, and Vovlas et al. The Office maintains its rejection of Claim 8 as unpatentable over Weibel, Arena and Vovlas et al., in further view of Gatz et al. And the Office rejects Claim 12 as unpatentable over Weibel, Arena, and Vovlas et al.

New Claim 13 has been added to further limit Claim 8. As such, Claims 1, 2, 4, 7, 8, and 10-13 remain in the case with none of the claims being allowed.

With regard to Claims 1, 2, 4, 7, 8, and 10-12, it is submitted that these claims are patentable over the cited references. It is respectfully submitted that Office has failed to appreciate, or to provide reference for, applicants' limitation that *the proportion of L-arabinose in the total amount of the acid-hydrolyzed monosaccharides is 50% or more, and L-arabinose contained in the envelopes of corn grain is selectively produced.*

None of the cited art discloses a way to achieve this result or suggests that this result is achievable. The prior art methods only produce the dominant component of the starting material in the dominant proportion. Applicants' method *selectively* produces arabinose, which is not the dominant component of corn envelopes, in the dominant proportion, i.e. *50% or more*.

The Office argues:

In regards to applicant's assertion that one of ordinary skill in the art would not expect arabinose to be selectively produced using corn envelopes, applicant has failed to provide support for said assertion. Weibel explicitly sets forth that other parenchymal cell-containing plants may be used. The Saulnier reference is noted; however, the reference only further supports the examiner's position that one of ordinary skill in the art would have found the instant method obvious at the time of the invention.

Just because Weibel suggest that "other parenchymal cell-containing plants may be used" does not mean that Weibel contemplates applicants' methods or the results of the claimed invention.

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Such "unlimiting" statements in a patent do not provide the motivation needed to modify another reference. *In re Benno*, 226 U.S.P.Q. 683,687 (Fed. Cir. 1985).

Further, the reference provides no expectation of success. The number of "parenchymal cell-containing plants" is very large and various components vary from plant to plant. This variability in the plant population decreases rather than increases the expectation of success. Just because one "could try" any of the other parenchymal cell-containing plants does not mean that they would even contemplate applicants' results or expect to successfully achieve applicants' selective production whereby the proportion of L-arabinose in the total amount of the acid-hydrolyzed monosaccharides is 50% or more. Obvious to try is not the test. There must be an expectation that the claimed results will be obtained in order for a reference to suggest the invention. *In re Dow Chemicals*, 5 U.S.P.Q. 1529 (Fed. Cir. 1988).

Regarding the Office's statements about Saulnier, e.g., that it would render applicants' invention obvious, it is respectfully submitted that the Office has misinterpreted Saulnier. Saulnier shows that xylose, not arabinose, is the dominant constituent produced after acid hydrolysis of maize bran. The Office argues, however, that Saulnier supports the position that one of skill in the art would have found applicants' invention obvious. The Office argues:

Saulnier teaches that treatment of maize pericarp with 0.05 M trifluoroacetic acid at 100 C for 2 hours release about 90% of the heteroxylans (xylose and arabinose).... It was observed that even after hydrolysis for only 30 minutes the proportion of monomeric arabinose was high (70% of released arabinose) and reached 95% within the first three hours of hydrolysis, whereas the proportion of monomeric xylose was nearly constant during the same period of time and increased for longer hydrolysis times. It was also observed that arabinose was released more rapidly than xylose, galactose, and glucuronic acid which were released at the same rate.

(See page 8, paragraph 3).

Initially, applicants point out that Saulnier uses an enzymatic digestion before acid hydrolysis. Further, the Office simply fails to appreciate that Saulnier does not disclose or

support applicants' *selective production* at the claimed *proportion of L-arabinose in the total amount of the acid-hydrolyzed monosaccharides is 50% or more*.

Sauliner discloses that at 30 minutes 70% of the total arabinose (16.8% dry weight) is released. However, 70% of the total arabinose of the released arabinose is only 11.76% dry weight (*see* page 243). At 30 minutes, 30 % of the total xylose (31% dry weight) is released (*see* page 244). Thirty percent (30%) of the released xylose is 9.3% dry weight. Sauliner et al. also discloses that galactose and gluconic acid were released at the same rate as xylose [i.e. 30% at 30 minutes] (*see* page 244). Thus at thirty minutes, the released galactose was 1.44% dry weight and the released glucuronic acid was 1.77% dry weight. The combined sum of released galactose and released glucuronic acid is 3.21%, which when combined with the amount of released xylose is 12.51 % dry weight. This amount also fails to consider the minute amounts of glucose, which are also present (*see* page 243). Sauliner's arabinose is less than 50% of the total amount of monosaccharides, not the claimed *50% or more*. Sauliner simply does not disclose or suggest the claimed invention.

Regarding applicants' Claim 8, it is respectfully submitted that because Weibel, Vovlas and Arena do not, either in combination or separately, anticipate or render obvious, *inter alia*, applicants' selective production, Gatz's hydrogenating is likewise unable to render applicants' Claim 8 obvious.

Regarding applicants' newly added Claim 13, which recites that the hydrolysis is non-enzymatic, applicants submit that Claim 13 is patentable for the reasons given above. In addition, Claim 13 is patentable because Sauliner and Weibel use an enzymatic digestion for production. Disclosure for the *non-enzymatic* limitation of the claimed process is provided, *inter alia*, in the **Problems to be Solved by the Invention** section on page 4 and 5 of the application as filed. For example, the specification discusses enzymatic methods that produce product with high purity and low yield. To contrast, the specification discusses acidic methods that produce product with a low purity and high yield. To overcome these problems, applicants teach methods using "acidic hydrolysis" [in contrast to enzymatic hydrolysis] to obtain product "in high purity, good efficiency and high yield" (page 6)(underlining added).

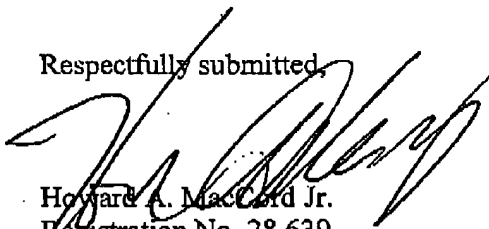
Regarding Weibel's statement that "[t]here is evidence that minor araban hydrolysis is occurring under condition 3 [possibly non-enzymatic]", there is simply no expectation that one

can achieve what applicants achieve, e.g. production where the *proportion of L-arabinose in the total amount of the acid-hydrolyzed monosaccharides is 50% or more* (underlining and bracketing added).

Conclusion

Applicants submit that by this amendment, for the reasons given above, they have placed the case in condition for immediate allowance and such action is respectfully requested. However, if any issue remains unresolved, applicants' attorney would welcome the opportunity for a telephone interview to expedite allowance and issue.

Respectfully submitted,


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